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>From ???@??? Thu Mar 05 13:14:33 1998  
Message-Id: <199803051251.GAA03501@sco.theporch.com>  
Date: Thu, 5 Mar 1998 06:51:06 CST  
Subject: BOATANCHORS digest 1953

BOATANCHORS Digest 1953

Topics covered in this issue include:

- 1) Both Have Ant Trim  
by n5off@w5ddl.aara.org
- 2) A simpler way to look at RF and mixer noise  
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- 3) R390-vs-R390A  
by "Brian P. Sherwood" <lurch@TheRamp.net>
- 4) Re: Tube sub 6AK5/6CB6?  
by "Arden Allen" <aallen@sirius.com>
- 5) A Millen 9220 Transmatch!  
by "Roberta J. Barmore" <rbarmore@indy.net>
- 6) Re: Tube sub 6AK5/6CB6?  
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- 7) C-D capacitor relatives  
by jcreid@mail.hac.com
- 8) Re: R390 vs. R390A  
by WILLIAM HAWKINS <bill@iaxs.net>
- 9) Re: C-D capacitor relatives  
by Ed Tanton <n4xy@bellsouth.net>
- 10) Receiver front ends and noise  
by Henry van Cleef <vancleef@netcom.com>
- 11) Re: Tube sub 6AK5/6CB6?  
by WILLIAM HAWKINS <bill@iaxs.net>
- 12) Cans wanted  
by Henry van Cleef <vancleef@netcom.com>
- 13) The REAL C E Rarie  
by polepeeg@aa4rm.radio.org (BA x-actions hr)
- 14) Boonton Q meter cleanup/fixup  
by Henry van Cleef <vancleef@netcom.com>
- 15) FS: Collins 32V-3  
by rlahlum@juno.com
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by "Arden Allen" <aallen@sirius.com>
- 17) Re: 6U8A gassy tube?  
by w7ni@teleport.com (Stan Griffiths)
- 18) Re:wtb capacitors-me too  
by w7ni@teleport.com (Stan Griffiths)
- 19) Re: Cans wanted

by Bill Jarvis <B.H.Jarvis@hw.ac.uk>

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Date: Thu, 05 Mar 1998 03:03:41 UTC  
From: n5off@w5ddl.aara.org  
To: boatanchors@theporch.com  
Subject: Both Have Ant Trim  
Message-ID: <201116@w5ddl.aara.org>

This thread sounds like a parlor game :-)

Both the 390 and 390A have ant trim. The 390A has it in the middle and the 390 has it on the side.

The rigs look mostly alike, but the innards are very different.

73 Tom

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Date: Wed, 04 Mar 1998 19:15:49 -0800  
From: Scott Robinson <spr@earthlink.net>  
To: boatanchors@theporch.com  
Subject: A simpler way to look at RF and mixer noise  
Message-ID: <34FE18E5.27A9D5D7@earthlink.net>

Folks,

I have been following this discussion for a while and think I see what the misunderstanding arises.

The easiest and most informative way to look at the noise performance of any amplifier or equivalent device-and a receiver is just an amplifier with frequency conversion and detection added-is to calculate or measure the input noise by taking out the gain to get back to the input. In a properly designed system, the noise performance is determined by the ratio of the signal at the weakest point (the input) to the noise AT THE INPUT! Any noise later on is compared not to the input signal but to that signal after it has been amplified, making the noise smaller by comparison.

It is of course possible to mess up the design by making a subsequent stage very noisy, but let's assume competent design here.

In this example I am purely guessing at noise numbers to show how

the thought process works. I am also assuming that the bandwidth (say 6 kHz) is constant through the examples.

If the input tube is a mixer and has an input self-noise of 10 uV, the weakest signal that can be received with a 20 dB S/N ratio will be 100 uV. If you put an RF amp in front of it with a gain of 20 and a self-noise of 1 uV, the combined noise will be  $\sqrt{1\text{uV}^2 + (10\text{uV}/20)^2}$  or about 1.1 uV. The weakest signal you can hear with a 20 dB signal to noise ratio is now 11 uV, so you are better off. This result is INDEPENDENT of how much gain you have in the mixer(s), IF strip, and audio sections of the receiver. If the rest of the radio doesn't have enough gain, the acoustic noise of the traffic outside your shack may drown out the signal at your ears but the front end has done all it can.

So there's why, presuming that RF amps are noisier than mixers, you definitely benefit from an RF amp in noise performance.

The other reason for RF amps is to permit two rather than one tuned circuits at the signal frequency before the mixer to improve image rejection. As a person who has some old radios-and some not so old-sans RF amps I will assure you it makes a difference.

Overall gain is best accomplished in the IF strip as it's cheaper and more likely to be free from cross-modulation since lots of selectivity has been applied before IF amplification takes place.

I hope this helps. I have considerable experience in low frequency systems design (below 20 kHz) and these principles apply equally to radios, audio, and instrumentation systems.

Regards,

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Scott Robinson  
spr@earthlink.net

Junque is GOOD for you!

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Date: Wed, 04 Mar 1998 21:27:33 -0600  
From: "Brian P. Sherwood" <lurch@TheRamp.net>  
To: boatanchors@theporch.com  
Subject: R390-vs-R390A  
Message-ID: <3.0.5.32.19980304212733.0079c5a0@mail.TheRamp.net>

squelch.

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Date: Wed, 4 Mar 1998 19:56:42 -0800  
From: "Arden Allen" <aallen@sirius.com>  
To: "Old Tube Radios" <boatanchors@theporch.com>, <n4fs@monmouth.com>  
Subject: Re: Tube sub 6AK5/6CB6?  
Message-ID: <199803050356.TAA01041@mail2.sirius.com>

Mike protests:

> Boy I hate to remain ignorant but I still do not see it. I agree that an  
RF  
> amp in front of a mixer degrades SNR less than just the mixer alone. Also  
I  
> believe that this whole thread started with which tube offers the better  
> SNR, or in the way I see it, degrades the input SNR the least. I also  
> realize that optimum gain match and noise match is typically not the  
same.  
> So, if it is agreed that some tubes or devices can perform better than  
> others then, in a limiting case, there could be an ideal tube or device  
> that had infinite gain and 0 dB Noise Figure. In that case what would the  
> output SNR be? Infinite, I do not think so. I honestly have a real  
mental  
> block here so appreciate any efforts to clear it up. And, about the soup  
> kettle, it is not a first for me but I have not drowned yet.....

No, you won't drown (It's just your stroke - Hi!). BA soup is mighty  
tasty.

S+N/N ratio, as I'm sure you know, is measured by lowering the input signal  
until the difference in audio output is 10 DB for modulation on and off,  
the less the microvolts, the better the receiver. How S+N/N is measured  
says nada, zip, big 0, about how the noise got there in the first place.  
You said that all the circuits do with regard to INPUT signal to noise  
ratio is degrade it and the trick to good design is to degrade the input  
S/N as little as possible. Correcto. BUT.....

If it wasn't for that nice 'n' quiet RF amp in front of the mixer the  
signal to noise ratio at the OUTPUT would be worse. By adding a low noise  
amplifier between the antenna and the mixer you have IMPROVED the signal to  
noise ratio of an X microvolt signal as HEARD coming out of the  
loudspeaker. After all, the purpose of the S+N/N test is to determine how  
good your receiver is, not how noisy the signal is at the antenna  
terminals.

The only other way to improve S/N is to tell the guy at the other end to pour on the coal.

Chalk it up to semantics if you want. ....Gentlemen, choose your we..(I said that already). Traditions die hard, but here we live in the past and we LIKE it. 73 Mike.

Give your loved ones Gummy Bears.  
Arden Allen KB6NAX Vallejo, CA aallen@sirius.com

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Date: Wed, 4 Mar 1998 23:24:58 -0500 (EST)  
From: "Roberta J. Barmore" <rbarmore@indy.net>  
To: BA <boatanchors@sco.ThePorch.com>  
Subject: A Millen 9220 Transmatch!  
Message-ID: <Pine.SUN.3.96.980304231028.7220A-1000000@indy2>

Hi, Gang!

I just received a Millen Transmatch--think it's a 92200, but it's two flights of stairs away--and I need some advice.

UPS managed, despite a good packing job, to smash one of the ceramic couplers on the variable condensers; I've subbed in a fix that will do 'til I happen on a suitable (non-flexible) coupler. (Hey, at least they didn't do in the knob or the condenser, \*that\* would have been heartbreaking).

But not too far away is the band (inductance) switch. Position registration of this switch is a little sloppy and I'm not too sure how good the contact pressure is. I'm trying to figure out if the switch got "UPSed" too, or if some wobble is normal. Any other Millen Transmatch owners out there who can say?

I'm sure it's fixable, one way or another, and checking the switch electrically is just a soldering-iron & ohmmeter job. Just lloking for some baseline info to start from.

This matcher is a pretty thing! Millen used a unique (and highly legible) font for the lettering, and painted the panel a deep grey-blue. Enclosure is a slightly lighter shade. A very nice look; who knows, I may lose my fondness for black-crackle yet! ;) (And oh, my, those big condensers are such fine gadgets...!)

73,

--Bobbi

KB9GKX "RJ" rbarmore@indy.net Roberta J. (Bobbi) Barmore  
FISTS #3388 \* ARRL \* RSGB \* WIA  
Appreciator Of Vacuum-Tube Ham Gear and Vintage Keys

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Date: Wed, 4 Mar 1998 20:18:46 -0800  
From: "Arden Allen" <aallen@sirius.com>  
To: "Old Tube Radios" <boatanchors@theporch.com>, <morriso@vifp.monash.edu.au>  
Subject: Re: Tube sub 6AK5/6CB6?  
Message-ID: <199803050427.UAA02447@mail2.sirius.com>

> .....The manual says the receiver has a low impedance amplified AVC system in order to > reduce blocking. I'd be interested in any explanation of what this means.

Blocking is caused by a VERY STRONG OFF CHANNEL SIGNAL. It's caused by the signal down the band coming from the kilowatt station of your ham "buddy" accross the street who always forgets when you like to work the QRP's. The signal hits the grid of your RF amp so hard the grid is driven positive with respect to the cathode for part of a cycle. Grid current flows into the AGC bus as a result. If the AGC bus is a high impedance circuit, such as supplied by the AGC detector, the increase in negative voltage of the bus will turn down the gain of the receiver and KL7XYZ/QRP will disappear and the band will be mysteriously quiet. If the receiver has a low impedance AGC bus the grid current will be absorbed by the bus without significantly increasing the bus voltage.

Give your loved ones Gummy Bears.  
Arden Allen KB6NAX Vallejo, CA aallen@sirius.com

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Date: Wed, 04 Mar 1998 15:53 -0800 (PST)  
From: jcreid@mail.hac.com  
To: boatanchors@sco.theporch.com  
Subject: C-D capacitor relatives  
Message-ID: <0EPB00CPZT0TYC@mail.hac.com>

Hi Gang,

I also picked up a very nice HA-1 keyer from one of the newsgroups. I've already written to Dick Dillman regarding my findings with it. One thing I noticed was that the unit has several Cornell-Dublier plastic molded caps in it that are very similiar to the black striped time bombs they used to manufacture. These particular caps are pink plastic and a little smaller in diameter than

their evil cousins. The values are stamped in yellow ink and are in English rather than color coded. Anyone have any experience with these capacitors? Replace them or leave them in? Thanks in advance.

-Jim N6SVS  
jcreid@mail.hac.com

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Date: Wed, 4 Mar 1998 23:22:48 -0600 (CST)  
From: WILLIAM HAWKINS <bill@iaxs.net>  
To: boatanchors@theporch.com, terrybu@netman.ENS.TEK.COM  
Subject: Re: R390 vs. R390A  
Message-ID: <199803050522.XAA26034@citrus.iaxs.net>

Well, there I was debating whether I'd be of more value to the company by writing a nasty letter or playing a few games of Solitaire when this mail appeared asking about the difference between the 390 and the A variant. I thought I knew something about that, so I replied without benefit of references. What a great way to generate traffic on the list.

Now I'm at home and have pulled down "Fixing Up Nice Old Military Radios" by Uncle Sam, volumes TM 11-5820-357-35 and NAVSHIPS 0967-063-2010. For starters, the antenna trim was moved, not re-moved. Don't try to use a 390 power supply module in a 390A. They have the same HV winding, but the 390A uses 6.3 volts at 8 amps while the 390 uses 25.2 volts for heaters.

The terminal strips on the rear are the same though. Except TB-101 on the 390 is called TB-103 on the 390A.

A year ago Christmas I OCR'd the Collins cost savings report for the project that created the 390A (and B, but it didn't go into production). They list 20 areas of cost savings, with some performance gains and losses. I posted a summary to r-390@qth.net, and will mail the 3 KB list to anyone who asks. Just a list of the 20 areas appears next:

- 1 - B+ Filter
- 2 - Elimination of Certain Functions (Squelch)
- 3 - IF Amplifier (Mech filters)
- 4 - Power Line Filter
- 5 - Tuning Control Stops
- 6 - Crystal Oscillator
- 7 - RF Coils
- 8 - Autotune Motor (391A)
- 9 - AF Filters (Drop 3500 cps)
- 10 - (No) DC Operation of Equipment (6 volt heaters)
- 11 - Main Frame
- 12 - Hum Balance Control

Date: Wed, 4 Mar 1998 22:32:47 -0700 (MST)  
From: Henry van Cleef <vancleef@netcom.com>  
To: boatanchors@theporch.com  
Subject: Receiver front ends and noise  
Message-ID: <199803050532.VAA07337@netcom17.netcom.com>



Well, since I tossed the match into this bucket of gasoline, I suppose it's time for me to comment.

I think a major function of this list is for people who are interested in old electronics to share and discuss things, and do it in such a manner that everyone who has something to contribute can do so, and so that all of us can learn new things. I try to contribute where I feel I can, but I also take from what other people to contribute.

Yes, Mike, it was your E-mail I was referring to. I think that the second mail you sent me made it clear to me that if you were going to be able to home in on what I was saying----which really was a "lift" from engineering literature of the 30's and 40's---it would have to be in some other forum than E-mail exchanges.

I made a quick comment about the RF preamplifier's main function being that of boosting the signal to overcome converter noise. That is not a universal truth---there are amplifiers that are quite noisy, and mixers that are quite quiet. When I made my comment, it was in the context of replying to some questions about an unidentified radio receiver of the 1950's. Now we've got an identity, a Hallicrafters S-76, while what I had in mind was an older single conversion set. Since we were talking about miniature tubes, I assumed that the converter that followed was a 6BE6 or similar. Turns out it was not, but instead, a 6AU6 with a separate local oscillator, which has much less internal noise.

The question was never about the amount of noise present in the signal at the antenna terminals. Assuming that the antenna signal is all signal and no noise (100 db S/N ratio should suffice), how much noise is added by the front end? Let's assume that the place we are measuring is the secondary of the first IF, and that it is double-tuned. That allows for us to focus on a bandwidth of about 10Khz around 455 Khz. in a typical later single conversion receiver. Let's assume we've got a scope probe on the IF secondary, and can see the noise, and can start putting low-noise signal on the antenna terminals and increase it until we have a 10db S/N ratio on the scope. (Purists will argue that a scope isn't the instrumentation for this, but you can see the picture with a scope, and do a rough estimate).

We are assuming that ALL of the noise appearing on the scope is being contributed by the receiver front end we are testing. If we put a ground strap across the antenna terminals, we are going to see noise on the scope. Let's assume that 100% of the noise we are seeing is contributed by the tubes in the front end, and that none of it is coming from resistors, etc. Langford Smith gives the equivalent noise resistance of a self-excited 6BE6 converter as 190,000 ohms, with a

conversion transconductance of 475 micromhos. Also gives the equivalent noise resistance of a 6BA6 amplifier as 3500 ohms and transconductance of 4400 micromhos. That is around 70 times less noise and 8 times more gain. I think that one can see, without doing any calculations, that a 6BA6 in front of a 6BE6 can raise the signal level substantially, without adding too much noise, compared to coupling the same signal directly to the 6BE6 grid.

I have said nothing about why we use "equivalent resistance" to express noise. It is tied to some plain vanilla physics, and the series "4KTBR" appears regularly in the calculations. K is Boltzmann's constant ( $1.38 \times 10^{-23}$  joules/degree K), T is temperature in degrees Kelvin ( $C+273$ ; 300 is normally used as the temperature), B is bandwidth in cycles per second, and R is ohms. 4KTBR will get you a value for noise as E squared. Since the only independent variable is R, it is convenient to use it directly.

When talking in this group, I try to keep things simple. The standard EE texts give the mathematics for handling noise producers in cascade in a chain, considering stage gain, etc. Yes, you can work lots of equations, and get numbers down to four-figure accuracy. Whether you'll get anything more than an approximation of some sort (two figure accuracy is more like it) from components mounted on a chassis is another question. Also, in this group, I think we are talking more about "why they did it that way" than about actually sitting down and designing---and taking into production---a radio receiver. The rule of thumb number used in the 30's and 40's was that a gain of 10-15 in an RF stage would suffice, and that anything above this vs. putting the gain in the IF and AF stages was counterproductive.

There are a whole bunch of tradeoffs in receiver design (RF, converter/mixer, IF, and audio voltage amps) that have to be considered. Making a high gain tuned RF stage has its problems. The fact that the tuning frequency varies, and that Q varies as a function of frequency, tends to open up the bandwidth as frequency goes up. Tracking becomes a severe problem if the bandwidth is not fairly wide to begin with, and any experienced technician will point out that oscillators that are supposed to, won't, while amplifiers which are not supposed to oscillate, will. High gain and variable tuned frequency are a formula for Russian Roulette with parasitics. So the rule of thumb among designers was to use the RF amp to boost the signal enough to overcome the worst of the converter problems, and put the serious gain in the fixed-frequency IF's and/or the totally-untuned AF stages. I particularly cited Radiotron Designer's Handbook 4th edition because the book has hundreds of pages on "how to design a good radio receiver" written by people who did it every day. Bill Halligan's people knew very well what was in that book, and operated primarily from its assumptions. Even National Co.

adventurers didn't stray too far from the assumptions given there.

Fifty years later, we have devices available that would have astounded the designers of 1940. FETs and transistors don't produce the copious quantities of noise that even a "quiet" tube did. And use of current-driven devices rather than voltage driven means that a whole radio can be built with a characteristic impedance of 93 ohms from antenna terminals to loudspeaker voice coil with no strain whatever. Of course, one generally likes to use 3.2-8 ohm loudspeakers, which actually present almost any impedance you want over the frequency range, but the wires are short compared to the signal frequencies, so you don't get standing waves or seriously-delayed reflections raising havoc with the circuits.

Now, Mike, I'm going to address a couple of things here openly. You used the term "rocket scientists" a few times, perhaps not quite being aware that there are some folks who post here regularly who are either blessed or cursed with having written theses and taken terminal degrees. Whether "terminal" is "the living end" or a Ph.D. I'm not too sure. A year ago we had a technician who probably had some valuable experience to share who decided instead to throw rocks at somebody else who had a Ph.D. and plenty of experience in his field, and plenty to share with us. I don't try to teach "college courses" here, but I think that this list isn't a place for "dumbed down" CB-with-a-license electronics, and I am not going to argue the ARRL's blandishments on this list beyond pointing out that fooling around with archaic technologies isn't really "amateur" stuff. From a personal perspective, I'm a Johnny-come-lately, since I didn't "turn pro" as a design engineer until about 42 years ago, long after some of the books we cite here were published, bought, thumbed through, and falling apart. I did hear a lot of the stuff that is in Radiotron Designer's Handbook from my elders and betters, including one old-timer who designed streetcar power systems starting in 1912 and learned electronics later. I play with the old stuff because it reminds me what was so intriguing about electronics in the forties and fifties that I've worked with it ever since. Modern stuff in little packages just isn't like getting a tube to do something, and I marvel that we got much of anything out of them. No, I don't even pretend to know all the answers, which is one reason I like posting to a peer group, who can remind me that I've got it wrong (again). But on this one, I was lifting from published material that squares with one of the basic rules of thumb that the oldtimers around me used, and that is sort of like Ohm's Law---not very arguable in a courtroom.

Morris Odell---yes, the term should be "noise figure."

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Hank van Cleef  
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Date: Wed, 4 Mar 1998 23:36:50 -0600 (CST)  
From: WILLIAM HAWKINS <bill@iaxs.net>  
To: boatanchors@theporch.com, morriso@vifp.monash.edu.au  
Subject: Re: Tube sub 6AK5/6CB6?  
Message-ID: <199803050536.XAA26140@citrus.iaxs.net>

Gummy bears may be right about RF amp rectification, but blocking also describes what happens when a strong station drives the AGC to maximum negative volts, and there's no discharge path when the strong station goes away except all those megohm resistors. A low impedance improves the recovery time.

Regards,  
Bill Hawkins

PS Forgot to add this old Irish saying to my R390/A post:

"Pity him who makes his opinion a certainty."

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Date: Wed, 4 Mar 1998 22:41:44 -0700 (MST)  
From: Henry van Cleef <vancleef@netcom.com>  
To: boatanchors@theporch.com  
Subject: Cans wanted  
Message-ID: <199803050541.VAA07880@netcom17.netcom.com>

It keeps occurring to me that I really should have some classic headphones for use with various bridges and other squeal-producers that have a phone jack on them for the purpose. Once again, I am listening to squeals from my Measurements 111-B crystal calibrator through an ancient mono "hi fi" tuner/preamp (Pilot, chock full of tubes). Any ideas on where to get some 1000 or 2000 ohm headphones?

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Hank van Cleef  
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Date: Thu, 5 Mar 1998 06:44:14 -0500  
From: polepeeg@aa4rm.radio.org (BA x-actions hr)  
To: ddillman@igc.apc.org  
Cc: boatanchors@theporch.com, marty@aa4rm.radio.org  
Subject: The REAL C E Rarie  
Message-ID: <199803051144.GAA01388@aa4rm>

It's not the C E AP-1 Adapter

I nominate the C E Pic tube rejuvenator. WB4MNF spotted one @ Dalton last weekend & cajoled me into owning the thing.

Has a nice huge 'Good Bad Ugly' meter that'll look better on my 813 amp than the colorless Simpson currently there

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Date: Wed, 4 Mar 1998 23:31:50 -0700 (MST)  
From: Henry van Cleef <vancleef@netcom.com>  
To: boatanchors@theporch.com  
Subject: Boonton Q meter cleanup/fixup  
Message-ID: <199803050631.WAA12176@netcom17.netcom.com>

Well, after actually using the Boonton 260-A I got last week to do some work, after a minor checkout, I came to the conclusion that there were just too many problems with oscillator bands not oscillating without a lot of knob shake-rattle-and-roll, and a few other things that needed attention before the box was truly useable. So I took it apart for a little serious cleanup activity. The oscillator was the first place where I've seen Caig Deoxit flunk.

The whole oscillator assembly comes out for unplugging one plug, removing all the knobs, and taking out six screws. A bunch more screws, and I had the covers off. No wonder Deoxit didn't make the coil turret contacts contact reliably. They are made out of brass, and had enough green on them to coat Saint-Gaudens' statue of Sherman and Horse in New York. Sixty-four 1/16 inch pins, each of which needed a good Brasso job, followed by a good soap-and-water job to make sure all the Brasso was off the pins. While I took the turret out to do this, and to gain access to the U-contacts for the pins, I found that they weren't green like the pins.

On the Q detector/voltmeter, I discovered (when it fell off as soon as

I took the screws out) that the strap from the thermocouple was cold-soldered to the L0 post. Taking the resonating cap and Q voltmeter assembly out was a bit more of a chore. Best way is to unsolder the three wires from the power supply to the Q voltmeter chassis, disconnect the meter leads, then pull the knobs. Three screws on the front, three on the top, and four into the thermocouple. There are thin shim washers on the front mounting studs, which immediately fall down and have to be stuck into place on reassembly, and three more loose spacers on the top, which don't have to be glued to reassemble. Copious notes on hardware placement, wire placement, and other little hardware details----you just can't take too many. Taking the power supply off and the meters out is obvious, and I had the front panel stripped of everything so I could give it a real bubble bath.

Off came the three plastic windows. They were filthy, front and back, as were the dials. Not accessible without disassembly.

The "Multiply Q By" meter was sticking. This is a fancy Weston 100 microamp meter with a low resistance coil, so is a fussy meter to deal with. Why was the meter sticking? There is gasket under the front cover that was misaligned, and just touching the tail of the meter pointer counterweight at midrange. Soaked the brittle gasket in water to soften it, and put it in place on the meter back cover with a weight on it to allow it to dry into the proper shape.

There are two calibration points for the resonating capacitor. One is accessible only with the assembly out of the box, and sealed with glyptal. The other is a blade on a shaft over the  $\pm 3$  mmfd (whaddya mean, "pf"---it says "micro-micro-farads" on the dial. This obviously is the final after-its-all-in-the-box tweak.

One thing to watch for is tweaks and adjustments that you don't want to disturb. The oscillator has a coil slug (glyptalled in place) and a trimmer cap for each range, as well as a master trimmer that supposedly compensates for differences between oscillator tubes. I did not take any of the dials off their shafts, as these are not adjustable with the assemblies in the box.

Tinned the L0 post with my 100 watt blunderbuss iron, cleaned up the tab on the thermocouple with a hemostat at the case end to bleed off heat, then soldered the tab onto the binding post securely. A 35-45 watt mini-iron won't work here. The blunderbuss just barely got in there, but made quick work of making a good joint. The teflon insulator for the posts got duly cleaned while the assembly was out, and the knurled posts (which have to come off to allow the assembly to come out) got soaked and toothbrushed, and now you can see all of the gold plating.

Put the whole thing back together. I am probably the only person who has a junker BC-221 as a source of needed hardware (I'm not the first guy in this one) who picked up the BC-221 guts and tried to mount it in the oscillator position. The oscillator assembly is about the same size, and it occurred to me that while I could not align the dial shafts with the holes, I was looking at the Boonton oscillator assembly sitting on the bench. After getting the Boonton oscillator in my hands, the shafts lined up with the holes nicely.

It's all together again now, and has been rough-checked on all ranges. What a difference! I can read the dials easily, now that the windows and dials are clean, and the oscillator clicks right in as soon as I switch it. The Q/Lo Q is right in matching calibration, and the readings are steady. And the "Multiply Q By" meter is smooth as silk, with no sticking anywhere.

Using the Boonton Q meter, as compared to the Marconi and Heath versions, is a bit slow and tedious, in that the thermocouple has a real time lag. I was taught to leave the oscillator output turned down at all times except when actually making measurements, but getting the needle to actually settle down right on one of the markings takes some time and skill. Marconi and Heath both use a higher impedance output from the oscillator and a series resistor and diode to a meter to measure the injection current, which is easier to manage. Still, the name "Boonton" goes with "Q-meter" the way "Tektronix" goes with "oscilloscope."

I was a little dubious about taking it apart as far as I did. The Boonton manual suggests sending it back to the factory for anything serious, but there's no factory to ship it to any more, so you are on your own when you play with something like this. But I found it to be a relatively simple box to work on, and am glad I did it. This Q meter has work to do, and as soon as I have it totally calibrated, with will be punching in and wearing its blue collar happily. The oscillator tube is marginal, and I've got a new one coming from Dexter Francis, who posts on this list and is a source of NOS tubes.

--

=====  
Hank van Cleef  
=====

-----  
Date: Thu, 05 Mar 1998 01:32:50 EST  
From: rlahlum@juno.com  
To: boatanchors@theporch.com

Subject: FS: Collins 32V-3

Message-ID: <19980304.000629.2063.0.rlahlum@juno.com>

This was a tough decision to make, but I need the cash...  
Collins 32V-3 in excellent condition, with original manual,  
\$700, pick up only.  
Can someone give my Collins a good home?  
73,  
Ross KB9JJR  
rlahlum@juno.com

---

You don't need to buy Internet access to use free Internet e-mail.  
Get completely free e-mail from Juno at <http://www.juno.com>  
Or call Juno at (800) 654-JUNO [654-5866]

---

Date: Wed, 4 Mar 1998 23:16:53 -0800  
From: "Arden Allen" <aallen@sirius.com>  
To: "Old Tube Radios" <boatanchors@theporch.com>, <jcreid@mail.hac.com>  
Subject: Re: C-D capacitor relatives  
Message-ID: <199803050715.XAA13735@mail1.sirius.com>

Hi Jim;

> .....One thing I  
> noticed was that the unit has several Cornell-Dublier plastic molded caps  
in it  
> that are very similiar to the black striped time bombs they used to  
manufacture.  
> These particular caps are pink plastic and a little smaller in diameter  
than  
> their evil cousins. The values are stamped in yellow ink and are in  
English  
> rather than color coded. Anyone have any experience with these  
capacitors?  
> Replace them or leave them in? .....

In my book ALL capacitors of that vintage are suspect. I verify by  
measurement whether a capacitor needs to be replaced. A leaky cap in a  
high impedance circuit will shift circuit parameters and upset tube  
operating conditions. A leaky cap in a low impedance circuit is of little  
or no consequence. Making circuit operating condition measurements tells  
me everything I want to know about caps, resistors, tubes, etc. By the  
time I'm finshed going through a receiver I've checked every tube element  
voltage, checked every corresponding resistor and determined by circuit



analysis (and a little voodoo magic) if a capacitor's leakage is a potential problem. In some cases where there is no dc voltage across a capacitor I measure the capacitor's leakage (with my Sprague T0-4 Telohmike) because that's quicker than going through the AC circuit analysis which can get hairy. Caps that have full power supply voltage applied which, if shorted, will cause serious secondary damage get replaced just for the sake of peace of mind. After checking for indications of capacitor leakage in a few places you will get an idea of what to expect with the rest of the caps in the BA. Generally speaking, I find I need to replace only about 10-30% of the caps. Saves lots of unnecessary work.

Give your loved ones Gummy Bears.

Arden Allen KB6NAX Vallejo, CA aallen@sirius.com

-----  
Date: Wed, 4 Mar 1998 23:23:01 -0800 (PST)  
From: w7ni@teleport.com (Stan Griffiths)  
To: cmar@datamat.it  
Cc: boatanchors@theporch.com  
Subject: Re: 6U8A gassy tube?  
Message-ID: <199803050723.XAA14320@smtp2.teleport.com>

>Hi Gang,  
>I wish to ask someone about a strange tube behaviour.  
>I changed several tube (6U8A , 6AZ8 and 6EB8) on my KWM-2A that apparently  
>was gassyfied (in the dark they glow blue color).  
>In case of 6U8A the new one too, appears "bluette" (I changed several 6U8A  
>made by Sylvania and GE). I checked relative circuits and it seems all OK  
>:-)  
>The question is: such behaviour is always synonymous of gassyfied tube?  
>  
>73 de Claudio  
>BA collector in Italy

Hi Claudio,

In general, I find the 6U8 (and 6U8A) to be the most unreliable tube type I have encountered in all the circuits they are used in, in early Tektronix scopes. I have no explanation for this. I just know I can change a 6U8 several times and get different performance each time. Most of the tubes I now use are used, but this was even true when I was using new 6U8s to fix scopes 30 years ago in a Tektronix Service Center. My conclusion was that you need a LOT of 6U8s to be sure of having a good one.

The second worst tube in my experience is the 6AN8 . . . My 6U8 and 6AN8 experiences are similar.

Stan w7ni@teleport.com

-----  
Date: Wed, 4 Mar 1998 23:23:54 -0800 (PST)  
From: w7ni@teleport.com (Stan Griffiths)  
To: ethan@olywa.net  
Cc: boatanchors@theporch.com  
Subject: Re:wtb capacitors-me too  
Message-ID: <199803050723.XAA14776@smtp2.teleport.com>

>Think I'll jump on this capacitor needed bandwagon...  
>I need some  
>.047uf or .05uf  
>.1uf  
>.02uf - .025uf  
>axial leads in 600VDC or greater, preferably paper and oil (eg sprague  
>"vitaminQ", or other manufacturer with part # that starts with "CP", or  
>even plastic vitaminQs).  
>  
>Ethan  
>

You need a "Tech America" Catalog. On page 19 of the September '97 catalog  
are all the caps you are looking for. Call 800-877-0072 for a catalog.

Stan w7ni@teleport.com

-----  
Date: Thr, 05 Mar 1998 07:27:19 +2400  
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>  
To: vancleef <vancleef@netcom.com>  
Cc: boatanchors <boatanchors@theporch.com>  
Subject: Re: Cans wanted  
Message-ID: <199803050727.HAA24704@punt1.hw.ac.uk>

On 1998-03-05 vancleef@netcom.com said:

va>X-Mailer: ELM [version 2.4 PL25]  
va>X-Listprocessor-Version: 8.1 -- ListProcessor(tm) by CREN  
va>Status:  
va>It keeps occurring to me that I really should have some classic  
va>headphones for use with various bridges and other squeal-producers  
va>that have a phone jack on them for the purpose. Once again, I am  
va>listening to squeals from my Measurements 111-B crystal calibrator  
va>through an ancient mono "hi fi" tuner/preamp (Pilot, chock full of

va>tubes). Any ideas on where to get some 1000 or 2000 ohm headphones?  
va>--  
va>=====  
va>Hank van Cleef  
va>=====

I'm under the impression that modern 64 ohm hi-fi earphones are so sensitive that to put 2 kohm in series leaves them as loud (other things being equal) as my old SG Browns used to be.

It's the modern magnetic materials, you know. (Or do you want to LOOK the part?)

I still want to know where the old SG Browns are. I have looked under all beds. I remember getting shocks off them - d-i-y- ECT? - but I'm all right now.

Bill,,  
GM8APX, qthr=No 6, EH4 6JY==No Rectangulars=Cave Felem==Ikke Hawkering

Possunt quia posse videntur

Net-Tamer V 1.10 - Registered

-----  
End of BOATANCHORS Digest 1953  
\*\*\*\*\*

>From ???@??? Fri Mar 06 04:07:39 1998  
Message-Id: <199803052317.RAA18171@sco.theporch.com>  
Date: Thu, 5 Mar 1998 17:17:49 CST  
Subject: BOATANCHORS digest 1954

BOATANCHORS Digest 1954

Topics covered in this issue include:

- 1) Re: RF or Mixer noise  
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
- 2) questions about sweeping IF

- by Ho4bart <Ho4bart@aol.com>
- 3) Re: [GreenKeys] Northern Radio model 174  
by Dave Prince <davprin@gil.com.au>
- 4) HR060 audio/comments  
by laffitte@prtc.net (laffitte)
- 5) Breaking 75A-2 VFO Seal  
by afpgreg@state.me.us (Paul V. Gregory)
- 6) Re: RF or Mixer noise/TRF Rx/Tuning  
by "Roberta J. Barmore" <rbarmore@indy.net>
- 7) Two things...  
by "Herbert M. Rosenthal" <herbrose@lobo.net>
- 8) MB Electronics, New Haven???  
by polepeeg@aa4rm.radio.org (BA x-actions hr)
- 9) Re: C-D capacitor relatives  
by jackiv@juno.com (John M Iverson)
- 10) ADMINISTRIVIA: Using The Archives  
by listown@jackatak.theporch.com (Mail List Owner)
- 11) Lafayette, La Hamfest  
by "Ronnie Hull" <w5sum@ms1.nwla.com>
- 12) Brookville ham fest  
by "James F. Wood 253-7886" <W00DJ@mail.firn.edu>
- 13) CE AP adapters  
by rodger singely <rbsingl@rs6000.cmp.ilstu.edu>
- 14) Navy Type CKB-50142 noise limiter question  
by rodger singely <rbsingl@rs6000.cmp.ilstu.edu>
- 15) Re: CE AP adapters  
by Bob Roehrig <broehrig@admin.aurora.edu>
- 16) RE: R390 vs. R390A  
by Terry Burge <terrybu@netman.ENS.TEK.COM>
- 17) Re: Receiver front ends and noise  
by "." <rau@wco.com>
- 18) A REAL BA...  
by Ken Gordon <keng@uidaho.edu>
- 19) T/R Relays WTB  
by "Alexander N. Gerli" <angerli@connix.com>
- 20) BA hardware  
by William Donzelli <william@ans.net>
- 21) Re: RF or Mixer noise/TRF Rx/Tuning  
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
- 22) What are these tubes?  
by Heinz und Hannelore Breuer <hbreuer@metronet.de>
- 23) R648  
by Ron or Wendy Hankins <rh8421@gate.net>
- 24) Re: What are these tubes?  
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>
-

Date: Thr, 05 Mar 1998 07:27:13 +2400  
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>  
To: n4fs <n4fs@monmouth.com>  
Cc: boatanchors <boatanchors@theporch.com>  
Subject: Re: RF or Mixer noise  
Message-ID: <199803050727.HAA24699@punt1.hw.ac.uk>

On 1998-03-05 n4fs@monmouth.com said:

n4>Status:  
n4>Arden -  
n4>Boy I hate to remain ignorant but I still do not see it. I agree  
n4>that an RF amp in front of a mixer degrades SNR less than just the  
n4>mixer alone. Also I believe that this whole thread started with  
n4>which tube offers the better SNR, or in the way I see it, degrades  
n4>the input SNR the least. I also realize that optimum gain match and  
n4>noise match is typically not the same. So, if it is agreed that  
n4>some tubes or devices can perform better than others then, in a  
n4>limiting case, there could be an ideal tube or device that had  
n4>infinite gain and 0 dB Noise Figure. In that case what would the  
n4>output SNR be? Infinite, I do not think so. I honestly have a real  
n4>mental block here so appreciate any efforts to clear it up. And,  
n4>about the soup kettle, it is not a first for me but I have not  
n4>drowned yet, HI. Thanks & 73s - Mike Mike B. Feher, N4FS  
n4>89 Arnold Blvd.  
n4>Howell, NJ, 07731  
n4>732-901-9193  
n4>-----  
n4>> Date: Wednesday, March 04, 1998 4:23 PM  
n4>> Mike finds himself in the soup kettle. This is an example of not  
n4>>heeding the advise to "choose your weapons.....er.....words  
n4>carefully".

I'm still fumbling with that 1920s replica Long/Medium Wave Broadcast Rx and I'm under the impression that some of the arguments (eg tram motor noise) which favoured the superhet, circa 1930, no longer apply. That's my main excuse for going back to TRF.

Then I set about ganging the two VCs and decided not to; "They" used to use both hands and tune two separate VCs whilst listening to the quality as well as the strength of the music. (Incidentally that's my excuse for the two PX25s.)

Am I right in thinking this means less noise altogether, although more manual facility? Ganging was to help the inexperienced and/or technically ill-informed, wasn't it? In John Scott-Taggart's book on how to tune in a good wireless, he says women are not capable of being taught how to do it.....

Bill,  
GM8APX, qthr=No 6, EH4 6JY==No Rectangulars=Cave Felem==Ikke Hawkering

Cantabit vacuus coram latrone viator

Net-Tamer V 1.10 - Registered

-----  
Date: Thu, 5 Mar 1998 02:41:44 EST  
From: Ho4bart <Ho4bart@aol.com>  
To: boatanchors@sco.theporch.com  
Subject: questions about sweeping IF  
Message-ID: <fca80739.34fe573a@aol.com>

Allen Arden's success with sweeping the SX-101's xtal filter sounds like mega fun. i am wondering how i can replicate that experiment in my own kitchen. at present i have only signal generators, freq counter, and lowerend Heath scopes ( solid state, sweep to about 1 MHz recurrent. ) I realize i need a triggered ( and maybe even delayed trace? ) scope to look at oscillators and such, but what else do i need to replicate this setup?

i see that many TV-service type sweepers start about 3 MHz, some higher. let's say i am doing an SX-101. why can't i tune the receiver to the sweeper's center frequency, if i can put that frequency centered somewhere in the 3 - 30 MHz range? i would first set the sweepwidth to zero, then tune the receiver to give an exact output to the counter and scope, then crank up the sweep, but slightly. maybe these TV sweeps just are made for a \*much\* wider sweep, so the 20-40 kHz bandpass we need to look at is too tricky to adjust for?

also, considering a panadaptor, if that is hung at the detector output, and then the receiver driven by a sweeping vfo at 455, 1650, or whatever the case may be, would that do the same thing, essentially?

sometimes the OT's just graphed the thing by noting readings; this was "hand swept" at a \*very low rate\*, and probably unworkable when you consider you want to see immediately the overall effect of tweaks.

tnx, hue miller

-----  
Date: Thu, 05 Mar 1998 20:56:32 +1000  
From: Dave Prince <davprin@gil.com.au>  
To: broehrig@ADMIN.AURORA.EDU  
Cc: boatanchors@sco.theporch.com  
Subject: Re: [GreenKeys] Northern Radio model 174  
Message-ID: <34FE84E0.284@gil.com.au>

Bob Roehrig wrote:

>  
> On Thu, 5 Mar 1998, Sheldon Daitch wrote:  
>  
> > Bob, if this is what I think it is, it is a tube type unit,  
> > with a scope in the middle, for tuning.  
>  
> Correct. Actually is is TYPE 174, MODEL 1. I was in error. Unit is  
> dated 1958, schematic is dated 1953. It has 2 VU meters, a loop current  
> meter, and a scope - I think a total of over 30 tubes (good grief, what  
> a shack warmer :-)

G'day Bob and Group,

I have just picked up some Northern radio gear as well. these are Frequency Shift Converters, Type 107, Model 2. I would say, not looking at them at present, that they would be about a 7" standard rack mount (19"). One complete and one for parts. These are dual channel units for diversity reception. 17 tubes plus the CRO tube.

Anyone know if these were used with R-390A or 391?

--  
Dave Prince VK4KDP  
davprin@gil.com.au  
Brisbane, Queensland, Australia

Collector and restorer of Military Radio and Signalling Equipment.

-----  
Date: Thu, 05 Mar 1998 07:23:19 -0400  
From: laffitte@prtc.net (laffitte)  
To: boatanchors@theporch.com  
Subject: HR060 audio/comments

Message-ID: <34FE8B27.40F@prtc.net>

Hi Gang:

Thanks to all who replied to my posting about the audio problem in the HRO 60. Although the symptoms pointed to the audio section, the failure was in the 3rd IF where an open resistor (47K) connected to the grid circuit was found. I have taken sometime to look for other out of range resistors and found several of them. As soon as replacement of these units is carried out, I will post the data so that others who own this receiver can benefit from the information.

This particular receiver has the crystal calibrator and NFM options but unfortunately the power supply section was solid stated and the power transformer was replaced. The 4H4 was eliminated and there is an additional modification using what looks like a 12AU7 tube. I have to find out what it is because the former owner did not specify it in the manual. Nonetheless the receiver works very well with excellent sensitivity and in this case my motto for the last 12 years has been "if it ain't broke don't fix it!"

Best 73s,  
Guido KP4FAR  
BA collector in the tropics  
San Juan, Puerto Rico

-----  
Date: Thu, 5 Mar 1998 08:48:38 -0500 (EST)  
From: afpgreg@state.me.us (Paul V. Gregory)  
To: Boatanchors@theporch.com  
Subject: Breaking 75A-2 VFO Seal  
Message-ID: <199803051348.IAA15354@gatekeeper.ddp.state.me.us>

Ahoy,

A friend tells me he had to resort to breaking the seal on a 75A-2 to replace a shorted capacitor which had prevented supply voltage from reaching the oscillator tube.

I've been led to believe breaking the seal on closed 75A-type rx vfos is a moral sin, leading to terminal instability.

Is this a myth? Can the VFO be "resealed" to prevent this? Or does proper maintenance call for replacing the entire VFO?

tnx fer reading  
N1ZRR, Paul



-----  
Date: Thu, 5 Mar 1998 08:51:49 -0500 (EST)  
From: "Roberta J. Barmore" <rbarmore@indy.net>  
To: Bill Jarvis <B.H.Jarvis@hw.ac.uk>  
Cc: Old Tube Radios <boatanchors@theporch.com>  
Subject: Re: RF or Mixer noise/TRF Rx/Tuning  
Message-ID: <Pine.SUN.3.96.980305082106.14080B-100000@indy2>

Hi, Everybody!

On 5 xxx -1, Bill Jarvis wrote:

> I'm still fumbling with that 1920s replica Long/Medium Wave Broadcast  
> Rx [...] going back to TRF.  
> Am I right in thinking this means less noise altogether, although more  
> manual facility? Ganging was to help the inexperienced and/or  
> technically ill-informed, wasn't it?

All ganging gets you is one less knob and some (small, in a TRF with only two tuned circuits) tracking worries.

Not ganging the tuning condensers allows some control of bandwidth (by stagger-tuning), though such sets are pretty broad by modern standards; generally you'll get better Q in the LF range than MF and on up.

...A good TRF set (sans reaction) should be inherently quieter than a multi-tube superhet Single-Squiggle receiver set to the same bandwidth: less active stages, less noise. The kicker is, it's not got as much gain, so you have to have lots of signal to start with. Probably *\*not\** a problem when aiming to receive LF BC stations! Bandwidth will likely be quite broad enough to exhibit reasonable flatness over the necessary passband, and with a low-distortion detector, such a receiver should exhibit very good fidelity.

Superhets won out back in the late '20s on grounds of better sensitivity and greater selectivity, along with simpler tweaking-up when built. (That last may sound wrong; but making an old neutrodyne play happy over the entire MW BC range was *\*quite\** a trick, in many ways more time-consuming than tweaking in the RF/Osc tracking and peaking up the IFs of a BC-band superhet!).

Serious monitoring of AM BC sigs has *\*continued\** to be done with TRF-type designs (skeptics are invited to visit WBAA at Purdue University to see the big fixed-tuned TRF in their Master Control room, or to have a look at the schematic of any classic AM BC station "Modulation Monitor," a one-stage "TRF" with fancy instrumentation; if you can't put the Mod Mon next to the transmitter and run a pick-up to get lots of sig, you have to add a healthy TRF amp!

> In John Scott-Taggart's book on how to tune in a good wireless, he says  
> women are not capable of being taught how to do it.....

Of course, utterly true and for a simple reason: we don't \*need\* to be taught, we're born knowing how! <grin>

(Hmpf, late-Victorian thinking! "Tuning a wireless, why next thing you know, they'll be running drill-presses, or sending Morse Code, or even--shudder--tuning wireless \*transmitters!\*" Yessiree, that would be the end of Western Civilisation As We Know It. Y'all had better be careful, gang; the Corp-level folks dropped me off an RF Network Analyzer yesterday and I already know how to use it!) (BTW, anyone out there familiar with the 7mm precision 50-Ohm coaxial connector? Strange little things, they make a "GR" coax connector look sensible!)

73,  
--Bobbi

"Can't tune a wireless!" Why, were I not so tickled by the silliness of it, I'd still be fuming! ;)

-----  
Date: Thu, 05 Mar 1998 08:01:28 -0700  
From: "Herbert M. Rosenthal" <herbrose@lobo.net>  
To: BoatAnchors <boatanchors@theporch.com>  
Subject: Two things...  
Message-ID: <34FEBE42.53F6@lobo.net>

Thing one: I request someone please email me with the filament specs (voltage and current) for an RCA 673. This is a large mercury vapor rectifier..about 10" tall; I'd like to use it as a night light in the shack.

-----  
Thing two. Perhaps you should check yours: I recently replaced the batteries in a large computer UPS for a friend. When I plugged it into the wall receptacle at my garage bench (concrete floor) to charge the batteries, all was normal, so I put it on the floor to get it off the bench.

I plugged it into a heavy, short extension cord that I made many years ago. Immediately the warning light on the UPS came on: "Site wiring fault." A check soon revealed that although the cord had a grounding plug and receptacle, this was a two wire cord..no green ground wire..bad news. I believe I made this for my wife's iron many years ago; there was no need for the ground..right!

Down to the local hardware store immediately, a new piece of 12-3,  
bright orange..rebuild the cord.

Try again..same thing..same message..How could this be???

I am using one of those 6-outlet receptacles that replaces the cover  
plate of a standard Duplex receptacle, and is held in place with the  
center screw. Need all those six outlets on the bench.

When I wiggled the plug in this six-holer, the ground came and went!!

Remove the six-holer and check for hot (narrow blade) to both neutral  
(wide blade) and to U-ground. The U ground connection was intermittent.  
I verified this with a continuity check between the U-ground and the  
metal wall box.

I replaced the wall receptacle with a COMMERCIAL GRADE 20 A receptacle  
(almost \$3, but worth it)..these are not the 43 cent ones in the bulk  
bin... and now all's right with the world.

Bottom line: complacency can get you 120VAC where you don't need it. I  
had two things working against me, and I never knew it. Fortunately I  
have never received a shock from any of my test gear, or from a Taiwan  
drill press that used that old extension.

Take a moment and wiggle things!

Bless that UPS and its fault-readout.

Cogent to all BAers who use 120VAC.

Herb Rosenthal W5AN  
herbrose@lobo.net

-----  
Date: Thu, 5 Mar 1998 10:45:44 -0500  
From: polepeeg@aa4rm.radio.org (BA x-actions hr)  
To: blowtankers@theporch.com  
Subject: MB Electronics, New Haven???  
Message-ID: <199803051545.KAA01626@aa4rm>

Anyone ever hear of them? Two pals got their T229 T1 500W op-amps  
(servo amps) last weekend & are looking for a print.

MB Electronics not in fone book

Tks,

Marty

-----  
Date: Thu, 5 Mar 1998 09:46:13 CST  
From: jackiv@juno.com (John M Iverson)  
To: jcreid@mail.hac.com  
Cc: boatanchors@theporch.com  
Subject: Re: C-D capacitor relatives  
Message-ID: <19980305.094956.3470.1.jackiv@juno.com>

these can be called the "yellow perils" i have a large number of these(had) they arrived in a large quantity of H-C stuff I bought. testing in the Heath cap tester, all showed heavy leakage at all voltages, ie 250v to 450 v. they all went into the garbage' 73 jack  
Jack Iverson K0EWU jackiv@juno.com

On Wed, 04 Mar 1998 15:53 -0800 (PST) jcreid@mail.hac.com writes:  
>Hi Gang,  
> I also picked up a very nice HA-1 keyer from one of the newsgroups.  
>I've  
>already written to Dick Dillman regarding my findings with it. One  
>thing I  
>noticed was that the unit has several Cornell-Dublier plastic molded  
>caps in it  
>that are very similiar to the black striped time bombs they used to  
>manufacture.  
>These particular caps are pink plastic and a little smaller in  
>diameter than  
>their evil cousins. The values are stamped in yellow ink and are in  
>English  
>rather than color coded. Anyone have any experience with these  
>capacitors?  
>Replace them or leave them in? Thanks in advance.  
>  
>-Jim N6SVS  
>jcreid@mail.hac.com  
>

-----  
You don't need to buy Internet access to use free Internet e-mail.  
Get completely free e-mail from Juno at <http://www.juno.com>  
Or call Juno at (800) 654-JUNO [654-5866]  
-----

Date: Thu, 5 Mar 98 11:15:01 CST  
From: listown@jackatak.theporch.com (Mail List Owner)  
To: boatanchors@sco.theporch.com  
Subject: ADMINISTRIVIA: Using The Archives  
Message-ID: <199803051715.LAA07521@jackatak.theporch.com>

Gang-

This periodic post is designed to help everyone gain more value from their boatanchors subscription.

SAVE THIS FILE FOR FUTURE REFERENCE!!!!!!

Often I receive an email request, or I read on the list, of someone who is aware there is an archive available with some special files with special information that is of a more permanent nature than a post to the list, but who is unaware of how to retrieve these gems.

In the archives, there are cross-reference tables for Tubes, Military Equipment Nomenclature, suggestions for restorations and modifications to our beloved fire bottle rigs, and some wonderful stories of real adventures and the people involved.

These files may be accessed by email... quickly and easily.

Step One:

send an email (leave the subject blank, or, if your mailer requires a subject, type a single character, like "a" in the subject box) to:

listproc@sco.theporch.com

Step Two:

in the body type:  
index boatanchors

Step Three:

after checking out the index for files of interest, and finding the one or more you want to have sent to you, send another email to:

listproc@sco.theporch.com

and, in the body, type:  
get boatanchors file.name

where you substitute the name of the file from the index for "file.name"

This should get you off to a good start. If you encounter any problems, please let me know at the address below.

--

73

Jack, W4KH/Mobile - - - BoatAnchor Mailing List Archiver/Owner - - -  
listown@jackatak.theporch.com - "Plus ca change, plus c'est la meme chose"

-----

Date: Thu, 5 Mar 1998 11:08:40 +0000  
From: "Ronnie Hull" <w5sum@ms1.nw1a.com>  
To: boatanchors@theporch.com  
Subject: Lafayette, La Hamfest  
Message-ID: <199803051720.LAA17474@ms1.nw1a.com>

how many boatmen are going to this I know I am.

got a problem though... send registration off a couple of weeks ago and I got it back today, with an unknown address stamp. Someone on the list graciously had this info sent to me, and I must have copied it down wrong.

Sandy, can you or someone down that way get me a phone number so I can call and be sure they reserve me a couple of tables?

I have bunches of BA goodies to take down...

almost through with the 1 tube ginney and 6L6 transmitter y'all,  
listen for me on 3579

Ronnie

-----

Date: Thu, 05 Mar 1998 12:38:40 -0500 (EST)  
From: "James F. Wood 253-7886" <WOODJ@mail.firn.edu>  
To: boatanchors <boatanchors@theporch.com>  
Subject: Brookville ham fest  
Message-ID: <E1517ZXGWI479D\*/R=FIRNVX/R=A1/U=WOODJ/@MHS>

Anyone going to the Brookville Ham fest(FL) this Saturday the 7th?  
I will be there setting up but No BA just some old junk etc, will be mosting looking for BA stuff like a good DX100.

Thanks

Jim

N4ACS

woodj@mail.firn.edu

-----  
Date: Thu, 05 Mar 1998 11:53:10 -0800  
From: rodger singely <rbsing1@rs6000.cmp.ilstu.edu>  
To: boatanchors@theporch.com  
Subject: CE AP adapters  
Message-ID: <3.0.3.32.19980305115310.006a0194@rs6000.cmp.ilstu.edu>

Dick raised a question about the CE AP1 adapter and while I don't have one of those I do have a question about the CE AP2 adapter. My sideband slicer unit came with one plugged in the back but no docs for it. It appears to be a converter for nonstandard IF's; has a 6BA7, 6BA6, an XTAL socket and two 455 if xfms mounted on a small chassis with a 6 pin plug on one side and a coax cable exiting the other. I am currently not using it since my CE slicer is working with my RME 4350 but in case I do get a BA in need of outboard product detection which has a strange IF I would like to get a copy of any special CE connection instructions.

Thanks,  
Rodger WQ9E

-----  
Date: Thu, 05 Mar 1998 12:02:40 -0800  
From: rodger singely <rbsing1@rs6000.cmp.ilstu.edu>  
To: boatanchors@theporch.com  
Subject: Navy Type CKB-50142 noise limiter question  
Message-ID: <3.0.3.32.19980305120240.0069feb0@rs6000.cmp.ilstu.edu>

I picked up a parts RAS unit at a hamfest long ago and with it came a "Type CKB-50142" Noise Peak Limiter. Tag states it is for use with RAS radio equipment and was manufactured for Navy Bureau of Ships by Mission Bell Radio Mfg. Co. Since it appears I am about to get a "new" HRO which does not have noise limiting, I would like to find out how this product was meant to be used. It consists of a small black wrinkle chassis and has a 6SQ7 and a 6SN7 along with an IF can with "grid cap" connector on top. The base has four small legs with rubber feet in addition to a standard octal plug. If anyone can enlighten me on the use of this I would appreciate it very much!

73, Rodger WQ9E

-----

Date: Thu, 5 Mar 1998 12:41:35 -0600 (CST)  
From: Bob Roehrig <broehrig@admin.aurora.edu>  
To: rodger singely <rbsingl@rs6000.cmp.ilstu.edu>  
Cc: Old Tube Radios <boatanchors@theporch.com>  
Subject: Re: CE AP adapters  
Message-ID: <Pine.ULT.3.96.980305124037.22310A-100000@admin.aurora.edu>

On Thu, 5 Mar 1998, rodger singely wrote:

> Dick raised a question about the CE AP1 adapter and while I don't have one  
> of those I do have a question about the CE AP2 adapter.

I have a hand-drawn schematic for the AP-2 if that would help. Don't have any other docs for it.

"Nostalgia is a thing of the past"  
E-mail broehrig@admin.aurora.edu 73 de Bob, K9EUI  
CIS: Data / Telecom Aurora University, Aurora, IL  
630-844-4898 Fax 630-844-5530

-----  
Date: Thu, 05 Mar 1998 11:09:50 PST  
From: Terry Burge <terrybu@netman.ENS.TEK.COM>  
To: boatanchors@theporch.com  
Cc: terrybu@netman.ENS.TEK.COM  
Subject: RE: R390 vs. R390A  
Message-ID: <9803051909.AA14035@netman.ENS.TEK.COM>

Gang,

This is a nice reply I got from Roy Morgan that says alot. Haven't had time to take a closer look at my R390. PLEASE, I didn't say only a non-A or an A had an antenna tuning knob. Someone made the comment to me that they thought the -A didn't have one and I replied to them I didn't know. I'm just learning about them.

Terry

----- Forwarded Message

Return-Path: morgan@sdct-sunsrv1.ncsl.nist.gov  
Return-Path: <morgan@sdct-sunsrv1.ncsl.nist.gov>  
Received: from tektronix.tek.com by netman.ENS.TEK.COM (4.1/8.2)  
id AA13957; Thu, 5 Mar 98 10:53:33 PST  
Received: from filtronix.wv.tek.com (filtronix.tek.com [134.62.8.48]) by tektronix.tek.com (8.7.5/8.7.3) with ESMTP id KAA12917 for



<terrybu@netman.ENS.TEK.COM>; Thu, 5 Mar 1998 10:53:24 -0800 (PST)  
Received: from fw2-internal.tek.com (fw2-internal.tek.com [134.62.12.17]) by  
filtronix.wv.tek.com (8.7.5/8.7.3) with ESMTP id KAA29507 for  
<terrybu@netman.ENS.TEK.COM>; Thu, 5 Mar 1998 10:44:33 -0800 (PST)  
Received: from fw2.tek.com (root@localhost)  
by fw2-internal.tek.com with ESMTP id KAA25982  
for <terrybu@netman.ENS.TEK.COM>; Thu, 5 Mar 1998 10:44:33 -0800 (PST)  
Received: from oasys.dt.navy.mil (oasys.dt.navy.mil [130.46.1.53])  
by fw2.tek.com with SMTP id KAA25978  
for <terrybu@netman.ENS.TEK.COM>; Thu, 5 Mar 1998 10:44:32 -0800 (PST)  
Received: from DTNET95-50.dt.navy.mil by oasys.dt.navy.mil (5.61/  
oasys.dt.navy.mil)  
id AA29524; Thu, 5 Mar 98 13:44:31 EST  
Received: by localhost with Microsoft MAPI; Thu, 5 Mar 1998 13:45:14 -0500  
Message-Id: <01BD483C.ECBF0060.morgan@sdct-sunsrv1.ncsl.nist.gov>  
From: "Roy S. Morgan" <morgan@sdct-sunsrv1.ncsl.nist.gov>  
Reply-To: "roy.morgan@nist.gov" <roy.morgan@nist.gov>  
To: "'Terry Burge'" <terrybu@netman.ENS.TEK.COM>  
Subject: RE: R390 vs. R390A  
Date: Thu, 5 Mar 1998 13:45:12 -0500  
Organization: ICDE Project  
X-Mailer: Microsoft Internet E-mail/MAPI - 8.0.0.4211  
Encoding: 82 TEXT

Terry,

Both the R-390 and R-390A have Line and Audio amplifiers with  
front-panel level controls.

The two large tubes are 6082's: dual low-mu triodes used as  
series regulators in the B+ supply (they are 26.5 volt  
equivalents to the more common 6080). All the B+ in the R-389,  
the R-390 and the R-391 is regulated to 180 volts. This circuit  
is responsible for: excess heat, attendant reliability problems,  
and certain failure mode dangers. In particular: if the  
filament of the dc regulator amplifier tube is not powered, the  
B+ in the set rises to the un-regulated level - about 420 volts.  
This is BAD. Unplugging the PTO power plug, failure of the PTO  
oscillator tube filament, or removing it from the socket will  
also cause this condition.

In most power supplies I have examined in these radios, the 6082  
cathode equalizing resistors have drifted high. They are  
two-watt carbon components, 47 ohms. If they drift high, they  
dissipate more power (not less as you would expect). As  
originally designed they are far from under rated for the  
conditions. If they drift differentially, the triode section  
with the low value will pass more current than the other with

attendant early failure of that tube. (On one power supply, I measured them as 56, 65, 78, and 60 ohms - this is from memory).

I have replaced them with good results with 3 watt rectangular wire wound ceramic cased units which cost about 80 cents each.

Similar conditions exist in the power supply module where each diode of the two rectifier tubes also has a 47 ohm two-watt resistor. These resistors carry the same currents as the ones in the series regulator and are subjected to close quarters and over heating.

I have installed a fan on the side of my R-390. I have developed a design for a simple plate to allow the use of a computer muffin fan and to allow installation of the thing once the radio is mounted in a relay rack (you can't get the radio into the rack with the fan mounted.) If you'd like more details, please let me know. I could scan the design and post it if many folks want it. With no fan, that section of the radio cooks itself into disaster. With the fan, it runs cool and happy. No doubt other tubes under the chassis run cooler, too.

Would you post this to the boatanchors list, please? I am at a different site from my subscription and the list server won't post messages sent from here.

- ----Roy Morgan  
Navy Hydrotechnology Center  
301-227-3855----

- -----Original Message-----  
>From: Terry Burge [SMTP:terrybu@netman.ENS.TEK.COM]  
Sent: Wednesday, March 04, 1998 3:40 PM  
To: boatanchors@theporch.com  
Cc: terrybu@netman.ENS.TEK.COM  
Subject: Re: R390 vs. R390A

Sorry about not seeing the group included in the reply header but it sounds like I started something. My R390 sounds like it is a little different than some peoples so when I get home I'll take account of what it has and post it to the group. I'm going from memory and that will get me in trouble every time. One of the things that seemed different to me from what I remember from the ASA back in 69-70 was the two audio adjustments, one 'line' and one local

I believe. It also has two larger size tubes about the size of 6146's visible from the holes in the side of the frame that someone said was different. I believe the tag said it was serial 1882 and it was labeled Collins.

Terry

----- End of Forwarded Message

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Date: Thu, 5 Mar 1998 11:13:01 -0800  
From: "." <rau@wco.com>  
To: "Henry van Cleef" <vancleef@netcom.com>  
Cc: "boatanchors" <boatanchors@theporch.com>  
Subject: Re: Receiver front ends and noise  
Message-ID: <199803051917.LAA18119@shell.wco.com>

Marvelous post Henry...really...  
glad i missed what - ever cat fight led up to it though!

Larry W6WUH

-----  
Date: Thu, 5 Mar 1998 11:59:02 -0800 (PST)  
From: Ken Gordon <keng@uidaho.edu>  
To: boatanchors@sco.theporch.com  
Cc: glowbugs@piobaire.mines.uidaho.edu  
Subject: A REAL BA...  
Message-ID: <Pine.BSF.3.95.980305115119.28909C-100000@piobaire.mines.uidaho.edu>

well, will wonders never cease? I have just been given the power-supply "module" for an ancient NMR machine by a friend in Montana. This unit has a DC power-supply which puts out 3kV at 3 amps and is regulated by 8 ea 304TLs in a series pass mode. The thing weighs about 1000 lbs, so I am asking my brother's sons to go get it and store it at my mother's garage.

I MAY be able/required to remove the 304TLs from it, and so, their sockets will be available to those who need them.

Lessee...a pair of them ought to be worth a bottle of good single-malt

Scotch, like Lagavulin, or Oban...shouldn't they...maybe?

: -)

Am working on finding some 833A sockets...

Ken W7EKB

-----  
Date: Thu, 05 Mar 1998 15:43:29 -0500  
From: "Alexander N. Gerli" <angerli@connix.com>  
To: Boatanchors Reflector <boatanchors@theporch.com>  
Subject: T/R Relays WTB  
Message-ID: <34FF0E71.2D9BB4E7@connix.com>

Hi,

I'd like to buy three B&W Model 372 (?) T/R Relays so I can get some old BA setups going. Anybody have these, or some equivalents??

--  
Sandy Gerli, AC1Y  
500 Country Club Road  
Avon, CT 06001-2406  
(860) 675-5566  
E-Mail: angerli@connix.com

Life Member: ARRL, QCWA  
Charter Member: Collins Collectors Association

REAL radios use firebottles  
The rest of 'em use them li'l chips...

"It's better to remain silent and be thought a fool,  
Than to speak up and remove all doubt!" - Mark Twain

-----  
Date: Thu, 5 Mar 1998 16:00:20 -0500 (EST)  
From: William Donzelli <william@ans.net>  
To: boatanchors@theporch.com  
Subject: BA hardware  
Message-ID: <Pine.GS0.3.96.980305155619.468T-1000000@titan.purch.ans.net>

Now that I am settled down a bit (I just spent a year as an apartment dweller, away from my goodies - hopefully now I can convince Barry to stop running that \_old\_ ad in ER!), I can concentrate on many long neglected projects.

Many of them involve missing screws and nuts, and as many of you know, are of the nickel plated brass variety. My source has dried up, and I am in need. Does anyone know where I can get some?

William Donzelli  
william@ans.net

-----  
Date: Thr, 05 Mar 1998 21:30:15 +2400  
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>  
To: rbarmore <rbarmore@indy.net>  
Cc: boatanchors <boatanchors@theporch.com>  
Subject: Re: RF or Mixer noise/TRF Rx/Tuning  
Message-ID: <199803052130.VAA06056@punt1.hw.ac.uk>

On 1998-03-05 rbarmore@indy.net said:  
rb>cc: Old Tube Radios <boatanchors@theporch.com>  
rb>Hi, Everybody!  
rb>On 5 xxx -1, Bill Jarvis wrote:  
rb>> I'm still fumbling with that 1920s replica Long/Medium Wave  
rb>>Broadcast Rx [...] going back to TRF.

rb>"Can't tune a wireless!" Why, were I not so tickled by the  
rb>silliness of it, I'd still be fuming! ;)

Yes, I \_thought\_ you'd enjoy that quotation! Scott-Taggart has some other strange notions.....is he known at all outside the UK? Reading his book on the ST200, ST400 and ST600 Super Wirelessees, and looking at the ultra-careful photographs of how to stop insulation fraying, one forms a pretty detailed picture of the gent. I have a neighbour who REMEMBERS him - the neighbour who donated many of the "period" components.

Haven't done any more on the project as we've been entertaining a visitor but he left today so hope to report more soon.

Thanks everyone for helpful comments -

Bill  
GM8APX, qthr=No 6, EH4 6JY==No Rectangulars=Cave Felem==Ikke Hawkering

Quadrupedante putrem sonitu quatit ungula campum

Net-Tamer V 1.10 - Registered

-----  
Date: Thu, 05 Mar 1998 22:50:56 +0100  
From: Heinz und Hannelore Breuer <hbreuer@metronet.de>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: What are these tubes?  
Message-ID: <34FF1E40.681D@metronet.de>

Hi,

I found the following tubes. They are miniature 7 pin:

CV136  
CV137  
CV138  
CV416  
CV4063

They are probably British military types?  
What are the equivalent US types?

I also found a strange tube marked 1941. It is about 1" in diameter,  
in total 2.25" high and has an aluminium head about 1" high  
The filament is horizontal to the bottom  
It has a strange 7 pin socket arrangement as follows

```
      cathode ?  
  
      o  
o      o  filaments  12.6 V ?  
  
o  o  
o  o
```

What is it???

Thanks for your help.  
73  
Heinz - KF6FNC

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Date: Thu, 5 Mar 1998 17:39:54 -0500  
From: Ron or Wendy Hankins <rh8421@gate.net>  
To: boatanchors@theporch.com  
Subject: R648  
Message-ID: <v03102803b124937f2cf7@[199.227.37.35]>

I am looking for an R648 receiver made by Collins. Anyone want to part with one?

Ron Hankins KK4PK  
555 Seminole Woods Blvd.  
Geneva, FL 32732

rh8421@usa.net  
rh8421@gate.net  
rh8421@bitstorm.net

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Date: Thr, 05 Mar 1998 23:08:34 +2400  
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>  
To: hbreuer <hbreuer@metronet.de>  
Cc: boatanchors <boatanchors@theporch.com>  
Subject: Re: What are these tubes?  
Message-ID: <199803052308.XAA06723@punt1.hw.ac.uk>

On 1998-03-05 hbreuer@metronet.de said:

hb>Hi,  
hb>I found the following tubes. They are miniature 7 pin:  
hb>CV136            =====6AM5   6P17 7D9 EL91 M8082 N77 N144 QA2402 QN77  
hb>CV137            =====EAC91 M8097  
hb>CV138            =====EF91   6AM6 6F12 8D3 6024 6064 HP6 M8083 PM07  
                    QA2403 QZ77 SP6 Z77  
hb>CV416            =====6F17 (kinda lonesome)  
hb>CV4063           =====M8082 6AM5 etc (5 lines up)  
hb>Heinz - KF6FNC

Let me know if you'd like me to try and find characteristics and/or pinouts of.

UN de

Bill  
GM8APX, qthr=No 6, EH4 6JY==No Rectangulars=Cave Felem==Ikke Hawkering

Si domi sum, foris est animus; sin foris sum, animus est domi

Net-Tamer V 1.10 - Registered

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End of BOATANCHORS Digest 1954

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